REMARKS/ARGUMENTS

Claims 1-3, 5-10, 12-14, and 17-21 remain in the application. Claims 4, 11, 15, and 16 have been canceled. Claim 1 has been amended. Claim 22 has been added. Reconsideration of this application, as amended, is respectfully requested.

Claim 1 has been amended to specify that a passage is formed through each of the at least two conducting layers and each of the at least two insulating layers to expose edges of each of the at least two conducting layers and each of the at least two insulating layers of the electrochemical cell. Support for this amendment can be found at page 13, line 28 through page 14, line 12 of the specification, claim 11, as originally filed, and FIGS. 2, 4, 6, and 8. Claim 1 has been further amended to specify that the at least one reagent is an enzyme. Support for this amendment can be found at page 15, lines 17-23 of the specification and claim 16, as originally filed.

Claim 22 has been added to recite that an opening is formed in the insulating substrate. Support for this claim can be found at page 13, lines 28-30 of the specification.

Claims 1-3, 5-9, 11, 13, 14, 16, 17, 20, and 21 stand rejected under 35 U. S. C. §103 (a) as being unpatentable over by the English language translation of Urban (WO 90/12314 A1). This rejection is respectfully traversed for the following reasons.

Urban et al., WO 90/12314 A1 (hereinafter "Urban et al."), discloses a micro-multi-electrode arrangement for electrochemical measurement and generation of electroactive species, where the electrodes are arranged upon a carrier, characterized in that an internal electrode and at least two additional electrodes are provided with the internal electrode being wired as reference electrode and with the other electrodes at least partly surrounding the internal electrode in the projection upon carrier.

Urban et al. discloses an electrochemical cell having an electrode 1, typically a reference electrode, an electrode 2, insulation layer(s) 4, a counter electrode 3, and an inert carrier 5. See FIGS. 11-13 of Urban et al. Claims 1-3, 5-9, 13, 14, 17, 20, and 21, as amended, require that a passage be formed through each of the at least two conducting layers and each of the at least two

insulating layers to expose edges of each of the at least two conducting layers and each of the at least two insulating layers, the edges collectively forming a wall or walls of the passage, the exposed edges of the at least two conducting layers forming the working electrode and a second electrode of the electrochemical cell. The added terminology means that all of the conducting layers and all of the insulating layers have a passage formed therethrough, i.e., the term "each" should be construed to mean "every". See Webster's II New Riverside University Dictionary, Houghton Mifflin Company, 1994, page 413, a copy of which page is attached hereto and marked Exhibit ARI. In Urban et al., the interior electrode, i.e., electrode 1, does not have a passage formed through it. The benefit of the electrochemical cell of the present invention over the electrochemical cell described in Urban et al. relates to the ease of and improvement in the manufacture of the electrochemical cell of the present invention relative to that of the electrochemical cell of Urban et al. As stated at page 5, lines 22-23 of the specification:

> ".....The electrochemical cells of this invention can be reproduced with great accuracy and precision....." [emphasis added]

See also page14, lines 1-12 of the specification for a discussion of the ease of manufacture of the electrochemical cell of this invention. The ease of manufacture is a direct result of forming a passage in each of the at least two conducting layers (every conducting layer) and in each of the at least two insulating layers (every insulating layer). For this reason, Urban et al. does not render claim 1, as amended, obvious to one of ordinary skill in the art. Claims 2-3, 5-9, 13, 14, 17, 20, and 21 depend from claim 1, as amended, either directly (claims 2, 5, 8, 9, 17, 20, and 21) or indirectly (claims 3, 6, 7, 13, and 14). For this reason, Urban et al. does not render claims 1-3, 5-9, 13, 14, 17, 20, and 21, as amended, obvious to one of ordinary skill in the art.

Claims 1-3, 5-13, and 16-21 stand rejected under 35 U. S. C. § 103 (a) as being unpatentable over Hyland (WO 03/056319 A2). This rejection is respectfully traversed for the following reasons.

Hyland et al., WO 03/056319 A2 (hereinafter "Hyland et al."), discloses an electrochemical cell which, either alone or in combination with a substrate

onto which it is placed, is in the form of a receptacle, the cell comprising a counter electrode and a working electrode, wherein at least one electrode has at least one dimension of less than 50 μm, the working electrode being in a wall of the receptacle.

Claims 1-3, 5-10, 12-13, and 17-21, as amended, require that the at least one reagent in contact with the working electrode be an enzyme. According to Hyland et al., at page 10, lines 13-23 of the specification, the electro-active substance 8 in Hyland et al. comprises an electrocatalyst, e.g., an enzyme (e.g., lactate oxidase, cholesterol dehydrogenase, lactate dehydrogenase, glycerol kinase, glycerol-III-phosphate oxidase, and cholesterol oxidase), ionic species and metal ions, for example, cobalt. Further according to Hyland et al., at page 10, lines 25-27:

> "The electroactive substance 8 is typically inserted into the receptacle in such a position that the electroactive substance is not in contact with the working electrode. This ensures that fouling of the working electrode is minimized or avoided....." [emphasis added]

Accordingly, Hyland et al. teaches that an enzyme should not be in contact with the working electrode. Thus, Hyland et al. teaches away from claims 1-3, 5-10, 12-13, and 17-21 of this application, as amended. The Ag/AgCl layer mentioned in Hyland et al. is the actual material from which the electrode or a layer thereof is made; the Ag/AgCl material is not an enzyme. For this reason, it is submitted that Hyland et al. does not render claims 1-3, 5-10, 12-13, and 17-21 of this application, as amended, obvious to one of ordinary skill in the art.

Claims 12, 18, and 19 stand rejected under 35 U. S. C. §103 (a) as being unpatentable over the English language translation of Urban (WO 90/12314 A1), and further in view of Fritsch et al. (US 2003/0015422 A1). This rejection is respectfully traversed for the following reasons.

Fritsch et al., US 2003/0015422 A1 (hereinafter "Fritsch et al."), discloses a three-dimensional microfabricated device wherein edges of a lipid bi-layer are anchored by alkanethiol derivitized inner edges of gold layers in

an etched region of insulator and wherein a bottom of the device is lined with an insulator layer.

Claim 1, as amended, requires that a passage be formed through each of the at least two conducting layers and each of the at least two insulating layers to expose edges of each of the at least two conducting layers and each of the at least two insulating layers, the edges collectively forming a wall or walls of the passage, the exposed edges of the at least two conducting layers forming the working electrode and a second electrode of the electrochemical cell. Because claims 12, 18, and 19 require all of the features of claim 1, as amended, Urban et al. alone does not render claims 12, 18, and 19 obvious to one of ordinary skill in the art.

As noted by the Examiner, Fritsch et al. does not disclose or suggest that the cavity electrode system described therein has a working electrode in contact with at least one reagent, wherein the reagent is an enzyme. See page 15 of the Office Action. Claim 1, as amended, requires that the working electrode be in contact with at least one reagent, wherein the reagent is an enzyme. Because claims 12, 18, and 19 include all of the features recited in claim 1, as amended, Fritsch et al. alone does not render claims 12, 18, and 19 obvious to one of ordinary skill in the art.

Urban et al. does not disclose or suggest that a passage be formed through each of the at least two conducting layers and each of the at least two insulating layers to expose edges of each of the at least two conducting layers and each of the at least two insulating layers, the edges collectively forming a wall or walls of the passage, the exposed edges of the at least two conducting layers forming the working electrode and a second electrode of the electrochemical cell. Furthermore, because Urban et al. requires an electrode to be an internal electrode, which does not have a passage formed therethrough, Urban et al. teaches away from the electrochemical cell of this invention. Fritsch et al. does not disclose or suggest that that the cavity electrode system described therein has a working electrode in contact with at least one reagent, wherein the reagent is an enzyme. Accordingly, Fritsch et al. also teaches away from the electrochemical cell of this invention. Therefore, the combination of Urban et al. and Fritsch et al. fails to teach the electrochemical cell of the present invention. For the foregoing reasons, the

combination of Urban et al. and Fritsch et al. fails to render claims 12, 18, and 19 obvious to one of ordinary skill in the art.

In view of the foregoing, it is submitted that claims 1-3, 5-10, 12-14, and 17-21, as amended, and claim 22 are in condition for allowance, and official Notice of Allowance is respectfully requested.

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